

## 3.8 Hydrology and Water Quality

This section analyzes the proposed project's and non-clustered scenario's potential impacts on local surface water and groundwater resources, and discusses regional water quality issues. The following analysis is based on various resources including the *Hydrological Analysis for Saddle Crest Homes VTTM No. 17388* (Appendix I.1) conducted for the proposed project as well as the *Conceptual Water Quality Management Plan (CWQMP) for Saddle Crest Homes* (Appendix I.2). This section also evaluates the proposed project's and non-clustered scenario's potential impacts on water resources in the project area and proposes mitigation measures as needed.

### 3.8.1 Environmental Setting

#### Regulatory Framework

##### ***Clean Water Act***

The Federal Water Pollution Control Act or CWA serves to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. The CWA was created in 1972, and then amended in 1977, and again in 1987 when the NPDES program was created. NPDES requires a permit for discharge of pollutants from industrial sources and publicly owned treatment works into navigable waters. The discharge must meet applicable requirements, which are outlined in the CWA and which reflect the need to meet federal effluent limitations and state water quality standards.

Section 303 (d) of the CWA states that each state shall identify those waters within its boundaries for which the effluent limitations required by section 301(b)(1)(A) and section 301 (b)(1)(B) are not stringent enough to implement any water quality standard applicable to such waters. The state shall establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such water. Pollution control strategies contained in the CWA are included in state and local requirements (see below) such as NPDES permits.

##### ***Federal Emergency Management Agency***

In 1968, the United States Congress passed into law the National Flood Insurance Act, which created the National Flood Insurance Program (NFIP). The NFIP is a federal program enabling property owners to purchase insurance protection against losses from flooding. Participation in the NFIP is based on an agreement between local communities and the Federal Government which states that if a community will adopt and enforce a floodplain management ordinance to reduce future flood risks to new and substantially improved structures in Special Flood Hazard Areas (SFHAs), the Federal Government will make flood insurance available within the community as a financial protection against flood losses.

Communities have the primary responsibility for regulating development and construction in floodplains and do so through a range of techniques that can include land use plans and policies, zoning, subdivision, and sanitary ordinances, single purpose floodplain management ordinances, and building codes and standards.

Communities that participate in the NFIP must adopt and enforce floodplain management requirements that meet or exceed minimum criteria established by FEMA, which administers the program. Communities meet this requirement by either adopting a single purpose floodplain management ordinance or by incorporating NFIP floodplain management requirements into their other land use measures and building codes. Many states and communities have adopted floodplain management requirements that go beyond NFIP minimum criteria. The proposed project site is currently outside of any 100-year or 500-year flood boundary.

### ***Porter-Cologne Water Quality Act***

The Porter-Cologne Water Quality Control Act is Division 7 of the California Water Code (CWC) and is directed primarily towards the control of water quality. Specifically, the Act requires that Water Quality Control Plans (Basin Plans) be prepared for the nine state-designated hydrologic basins in California. The San Diego Region Basin Plan, which covers the Aliso Creek Watershed and the project site, was approved by SWRCB and contains additional amendments adopted by the San Diego RWQCB on June 8, 2011. Projects are required to adhere to applicable water quality standards and objectives of the Basin Plan.

### ***Water Quality Control Plan***

The Water Quality Control Plan for the San Diego Region regulates water quality per the Porter-Cologne Act of the CWC. Resolution No. R9-2011-0047 amended the San Diego Region Basin Plan with revisions reflecting the 2011 review of the plan. The revised plan reflects the review process by which the San Diego RWQCB identified and prioritized suggested Basin Plan revisions in need of further evaluation. New construction such as that proposed by the project must meet the water quality standards and objectives of the current Basin Plan.

### ***NPDES General Construction Permit for Storm Water Runoff***

Construction activities disturbing one acre or more of land are subject to the permitting requirements of the NPDES General Construction Activity Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit). On September 2, 2009, the SWRCB adopted a new General Construction Permit that became effective on July 1, 2010. The new permit requires a risk-based permitting approach, dependent upon the likely level of risk imparted by a project. The new permit also contains several additional compliance items, including: (1) additional mandatory BMPs to reduce erosion and sedimentation, which may include incorporation of vegetated swales, setbacks and buffers, rooftop and impervious surface disconnection, bioretention cells, rain gardens, rain cisterns, implementation of pollution/sediment/spill control plans, training, and other structural and non-structural actions; (2) sampling and monitoring for non-visible pollutants; (3) effluent monitoring and annual compliance reports; (4) development and adherence to a Rain Event Action Plan; (5) requirements for the post-construction period; (6) numeric action levels and effluent limits for pH and turbidity; (7) monitoring of soil characteristics on site; and (8) mandatory training under a specific curriculum.

Under the revised permit, BMPs will be incorporated into the compliance action and monitoring requirements for each development site, as compared to the existing permit, where specific BMPs are implemented via a SWPPP. Under the updated permit, a SWPPP for the project would be reviewed by the RWQCB.

### ***MS4 Permit***

The current MS4 Permit for South Orange County (R-9-2009-002) was adopted by the San Diego RWQCB on December 16, 2009 many years after the approval of the F/TSP (see below). The emphasis on requirements contained in the MS4 Permit are placed on infiltration of site runoff and the implementation of LID techniques and site design BMPs. The proposed BMPs will be designed and sized to ensure they meet the following goals:

- Control the runoff pollution by using a combination of on-site source control and site design BMPs augmented with treatment control BMPs before the runoff enters the MS4.
- Use of LID site design BMPs at new development for minimizing the impact of storm water runoff discharges from development projects on receiving waters. LID is a site design strategy with a goal of maintaining or replicating the pre-development hydrologic regime through the use of design techniques.
- Implement the hydromodification measures to mitigate the increased volume, velocity, frequency and discharge duration of storm water runoff from developed areas to mitigate the downstream erosion, protect stream habitat in natural drainages and preserve the beneficial uses.

The priority being that dry weather flows would be required to be contained on the project site. To help achieve this goal the project's design would have to implement LID BMPs which would collectively minimize directly connected impervious areas, limit loss of existing infiltration capacity and protect areas that provide important water quality benefits necessary to maintain riparian and aquatic biota, and/or are particularly susceptible to erosion and sediment loss.

The current MS4 also expands and clarifies current requirements for the control of MS4 discharges to limit hydromodification effects caused by changes in runoff resulting from development and urbanization. The project would be required to compare post-development flows against naturally occurring (pre-development) conditions utilizing a continuous simulation hydrologic model to more accurately depict real world storm event conditions. The goal is to mimic the pre-development hydrology discharges. Again, the incorporation of LID techniques to utilize infiltration would help achieve this goal as well as the use of other hydromodification BMPs on-site or off-site in stream.

### ***Orange County Stormwater Program***

The integrated Orange County Stormwater Program implemented by the County of Orange was created in the spring of 2000 to provide a more cohesive focus on protecting and improving water resources throughout Orange County. Stemming from requirements of the federal Clean Water Act, the County monitors the physical, chemical and biological condition of Orange County's waterways. The specific water pollutant control elements of the Orange County Stormwater

Program are documented in the 2003 DAMP which is the Permittees' primary policy, planning and implementation document for MS4 Permit compliance. The DAMP was prepared and is periodically updated using a consensus building process that involving public and private sector input and public review.

### ***Orange County Hydrology Manual***

The Orange County Hydrology Manual was established as the local implementing device to provide a standard for the preparation of computation techniques and criteria for estimation of runoff, discharges and volumes for use in submittals to the County of Orange for the approval of proposed development projects with the goal being to demonstrate 100-year flood protection for all habitable structures and other non-flood proof structures. Additionally, the Orange County Hydrology Manual, established in 1986, provides a mechanism to evaluate and mitigate potential increases in flow to downstream areas of a watershed due to development to which all projects in Orange County are required to adhere.

### ***Orange County General Plan***

The following policy is contained within the Orange County General Plan Water Resources Component pertaining to water quality that would apply to the proposed project or the non-clustered scenario.

Policy 5            Water Quality - To protect water quality through management and enforcement efforts.

In addition, Policy 13 in the Land Use Element pertaining urban stormwater runoff would also apply to the proposed project or the non-clustered scenario establishing policies to minimize the amount of impervious surface and disturbances of natural drainage systems, and implementation of appropriate pollution prevention methods.

### ***Foothill/Trabuco Specific Plan***

The F/TSP does not contain any goals or objectives that relate directly to the proposed project or non-clustered scenario in terms of hydrology and water quality. However, it does contain the following relevant to hydrology:

## **II.C Specific Plan Components – Resources Overlay**

### **4.2 Designation of Streambed Boundaries**

Guideline a:        Applicants for development proposals on parcels containing streambeds as designated in Exhibit II-5 and parcels within 100 feet of any designated streambed shall be required to prepare a site-specific streambed analysis prepared by a hydrologist to determine the precise boundary of the identified streambed. Said analysis shall include detailed mapping of at least 1:100 scale (1:40 scale

within the area of disturbance) for incorporation into EMA's Intergraph Mapping System.<sup>1</sup>

- Guideline b: Said applicants shall be required to submit detailed, site-specific analyses to identify the direction and flow of natural runoff from the site, or immediately adjacent to the site. The detailed, site-specific analysis shall address the need for mitigation measures such as check dams, drop structures, rip-rap, energy dissipation structures and flow stabilizing devices (below drainage discharge flows) to keep velocities close to pre-development levels.

#### 4.2 Uses Within and Adjacent to Streambeds

- Guideline a: All development should minimize discharge so that future storm flows do not significantly exceed existing flow levels. While drainage improvements are not prohibited, they shall be minimized to the extent possible.
- Guideline b: Where man-made drainage devices and improvements (including bend drains and drainage channels) are required, they shall be placed in less visible locations and naturalized through the use of river rock, earth-toned concrete and extensive landscaping.

### **IV.C Grading, Drainage and Site Planning Guidelines**

#### 2.0. Drainage Guidelines

- Guideline a: The use of permeable surfaces, such as wood decks, sand-jointed bricks and stone walkways should be incorporated into project design, where feasible, in order to minimize off-site flows and to facilitate the absorption of water into the ground.
- Guideline b: Natural drainage courses should be preserved and enhanced to the extent possible. Natural drainage features should be incorporated as an integral part of the project design in order to enhance the overall quality and aesthetics of the site. Development should be designed to minimize the need for channelization.
- Guideline c: Where bench drains, drainage channels or other man-made drainage devices are required, they should be placed in less visible locations and should be naturalized through the use of river rock, colored concrete and extensive landscaping.
- Guideline d: All lots should be designed so that surface drainage from the lot will drain to its own street frontage, an approved natural water course or improved drainage easement. The use of permeable surfaces, such as wood decks and stone pedestrian walkways is encouraged to facilitate absorption of water into the ground.

Many of the drainage guidelines found in the F/TSP are easily met with the more stringent requirements found in the MS4 permit discussed above. More advanced hydrologic modeling techniques and calculations have been developed (subsequent to the adoption of the F/TSP) to

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<sup>1</sup> It should be noted that subsequent to completion of the F/TSP, EMA became OC Planning.

help quantify function and integrate appropriate mitigation measures for hydrology and water quality design as required by the MS4 permit.

## **Existing Conditions**

### ***Regional Setting***

The project site is located within the upper reaches of the Aliso Creek Watershed. The headwaters of the Aliso Creek Watershed originate in the foothills of the Santa Ana Mountains within the Cleveland National Forest. The Aliso Creek Watershed covers 34.87 square miles and includes portions of the cities of Aliso Viejo, Dana Point, Laguna Niguel, Laguna Woods, Laguna Beach, and Lake Forest as well as unincorporated areas of Orange County. Smaller tributaries within the watershed include Wood Canyon, Sulphur Creek, the Aliso Hills Channel, and English Channel.

### ***Project Area***

#### **Existing Drainages**

The topography of the project site consists of generally moderately steep ridges and narrow valleys and canyons. In the existing condition, the project site is part of a 376.8-acre tributary drainage area consisting of five sub-drainage areas; “A,” “B,” “C,” “D,” and “E” as described in the hydrological analysis prepared for the project site (**Figure 3.8-1**). The five sub-drainage areas ultimately convey runoff into Aliso Creek where it eventually empties into the Pacific Ocean. The site’s existing condition produces a 100-year peak flow of 1,174.8 cfs.

#### **Flooding**

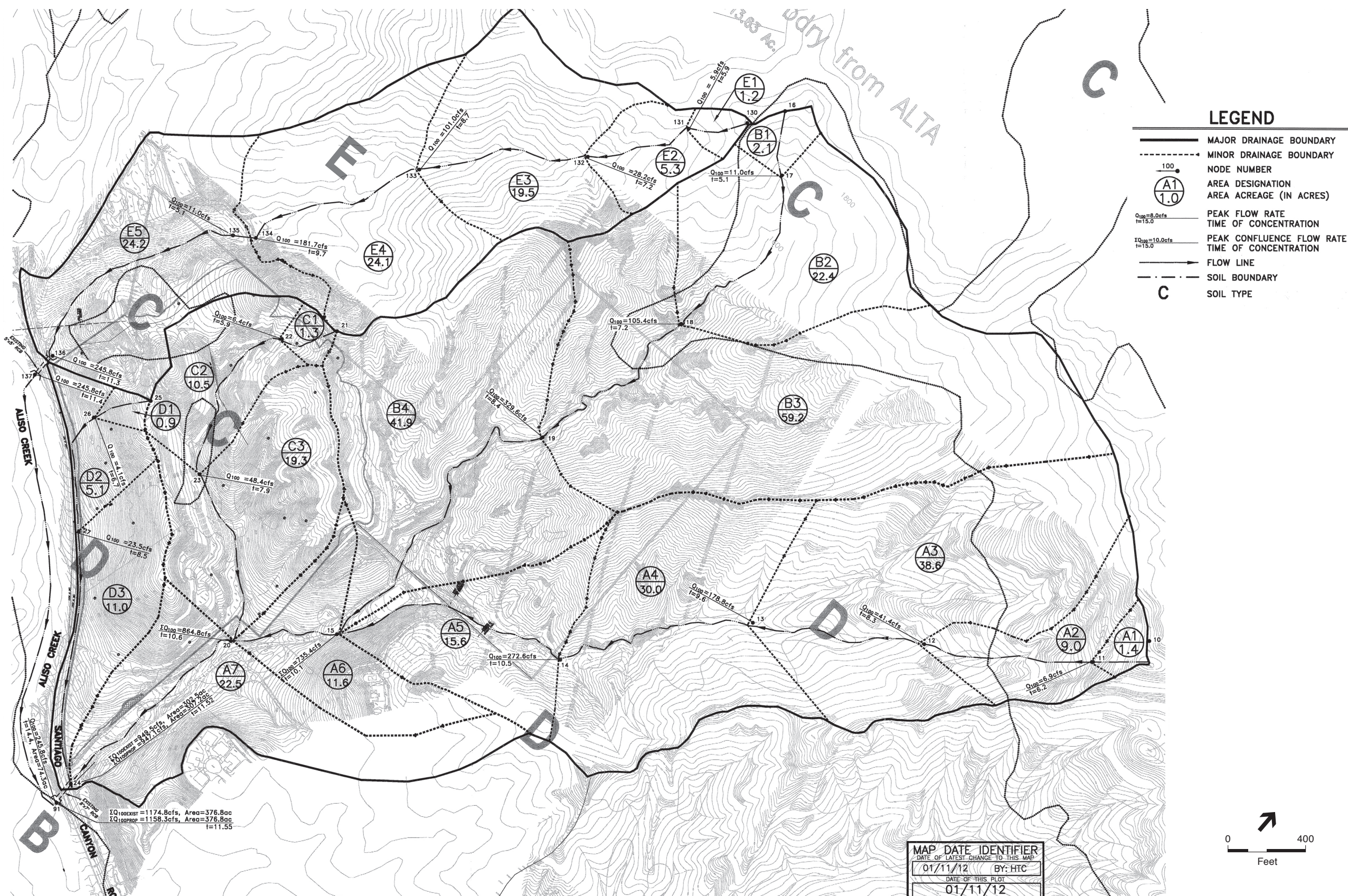
Flooding is inundation of normally dry land as a result of rapid accumulation of stormwater runoff or rise in the level of surface waters. Flooding becomes a hazard when the flow of water exposes people or structures to a significant risk of loss, injury, or death. Flooding generally occurs due to excess runoff due to heavy snowmelt or rainfall, but it can also result from the interaction with natural hazards, such as tsunamis, seiches, or failure of dams.

FEMA, through its Flood Insurance Rate Map (FIRM) program, designates areas where flooding could occur during a one percent annual chance (known as a 100 year) or a 0.2 percent annual chance (500 year) flood events. The project site is located in Zone X which is outside of the 100-year and 500-year flood zones.

#### **Surface Water Quality**

Currently, there are no known pre-existing water quality problems associated with the project site (Hunsaker, 2011b). However, the project site is tributary to Aliso Creek. The San Diego RWQCB has identified Aliso Creek as impaired for bacteria, phosphorous, and toxicity. There are currently no Total Maximum Daily Load requirements established for Aliso Creek.





SOURCE: Hunsaker & Associates, 2012.

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**Figure 3.8-1**  
 Existing Hydrology Conditions



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## Groundwater

Information regarding the hydrogeologic conditions beneath the project site is based largely on a geotechnical evaluation prepared for the project (Pacific Soils Engineering, 2010). The only groundwater observed during the course of the geotechnical investigation consisted of minor seepage from fractures or at the contact of dissimilar subsurface materials. In general, the groundwater that was encountered was considered to be isolated and perched within bedrock units and not part of a regional groundwater table. The presence of perched groundwater is likely to fluctuate in location and intensity and heavily dependent on seasonal precipitation.

### 3.8.2 Thresholds of Significance

In accordance with Appendix G of the *CEQA Guidelines* and the County of Orange Environmental Analysis Checklist, a project would result in potentially significant impact if it would:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
- Substantially alter the existing drainage pattern of a site or area including the alteration of the course of a stream or river in a manner that would result in:
  - Substantial erosion or siltation on- or off-site, or
  - A substantial increase in the rate or amount of surface run-off in a manner which would result in flooding on- or off-site;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other authoritative flood hazard delineation map;
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows;
- Exposes people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.

It was determined in the NOP/Initial Study (see Appendix A.1) that implementation of the proposed project or non-clustered scenario would have a less than significant impact related to

flooding. Additionally, no public comments were received regarding these thresholds during the 30-day NOP/Initial Study public scoping period. Therefore, no further analysis of significance criteria related to flooding is included in the EIR.

### 3.8.3 Methodology

The following analysis considers the existing regulatory environment that the proposed project and the non-clustered scenario would be subject to which includes both construction and operational phases. In accordance with County requirements, a preliminary hydrology analysis was prepared for the proposed project to determine the flow rates produced from portions of the project site and served as the basis for analyzing and designing the on-site storm drainage system. All hydrology calculations were prepared per the criteria contained in the Hydrology Manual, as amended (Hunsaker, 2011a and 2011b). The CWQMP prepared for the project was also reviewed for consistency with the County of Orange MS4 Permit and the ability of project design to minimize potential impacts related to hydrology and water quality. Considering the project characteristics and existing conditions the following potential impacts were evaluated and mitigation measures provided, where applicable.

### 3.8.4 Project Design Features

The following project design features have been included for the proposed project and some would also apply to the non-clustered scenario. All project design features will be included in the Mitigation Monitoring and Reporting Program and will be monitored to ensure completion, in the same manner as the project's mitigation measures.

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|--------|---|
| PDF-1  | Open space within Saddle Crest Homes accounts for 70 percent of the project site (approximately 79.8 acres). Approximately 51 acres of that open space will be offered for dedication to the County and is adjacent to the Cleveland National Forest, providing a forest buffer, which is a goal of the F/TSP.  |
| PDF-23 | The project has been designed to mimic the hydrological characteristics of the site in its natural, undeveloped state through clustering the home sites, controlling development flows (runoff) with a hydromodification detention basin and water quality basin (see PDF-24), and preserving the site's main drainage along the easterly boundary, thereby adhering to current hydromodification requirements established by the current MS4 permit.   |
| PDF-24 | <p>The project has been designed to treat development flows (runoff) with a dry extended detention water quality basin, while implementing the following low impact development techniques:</p> <ul style="list-style-type: none"><li>• Conservation of natural areas, including existing trees, other vegetation and soils.</li><li>• Keeping streets at minimum widths and eliminating paved sidewalks in parkways.</li><li>• Minimizing the impervious footprint of the project.</li></ul> |

- Minimizing disturbances to natural drainages.
- PDF-25 The project will be designed to include the following best management practices to promote infiltration and slow down surface flows:
- Impervious area dispersion.
  - Native landscaping/efficient irrigation.
- PDF-34 The project includes a Hydrology Analysis that demonstrates that the proposed development will not overload existing drainage facilities downstream of the project site or exceed existing runoff velocities and peak discharge at discharge points for the 2-, 5-, 10-, 25-, and 100-year storm events.
- PDF-35 The project includes a Conceptual Water Quality Management Plan (CWQMP) that has been prepared to identify preliminary best management practices (BMPs), which may be used on-site to control predictable pollutant runoff. The CWQMP has been based on the Orange County Drainage Area Management Plan (DAMP), Model WQMP, Technical Guidance Manual, and the County's WQMP template. The CWQMP includes the following:
- Detailed site and project description.
  - A description of potential stormwater pollutants.
  - Post-development drainage characteristics.
  - Low impact development (LID) BMP preliminary selection and analysis.
  - Preliminary structural and non structural source control BMPs.
  - Preliminary site design and drainage plan (BMP Exhibit).
  - GIS coordinates for all proposed LID and treatment control BMPs.
  - Preliminary Operation and Maintenance Plan that : (1) describes the long-term operation and maintenance requirements for BMPs identified in the BMP Exhibit; (2) identifies the entity that will be responsible for long-term operation and maintenance of the referenced BMPs; and (3) describes the mechanism for funding the long-term operation and maintenance of the referenced BMPs.
- PDF-36 In order to comply with the MS4 permit, the water quality basin (dry extended detention basin) will be designed for a maximum 72-hour draw down period for retained runoff to mitigate potential vector issues. The hydromodification basin will employ approved vector control treatment measures as specified in the California Department of Public Health's recommendations for best management practices for mosquito control in collaboration with the Orange County Vector Control District to mitigate potential vector issues.
- PDF-37 The project will incorporate the use of pervious pavers and roof drains connected to pervious areas.

### 3.8.5 Project Impacts

**Impact 3.8.1:** Violate water quality standards.

**Significance Standard for Impact 3.8.1:** Would the proposed project violate any water quality standards or waste discharge requirements?

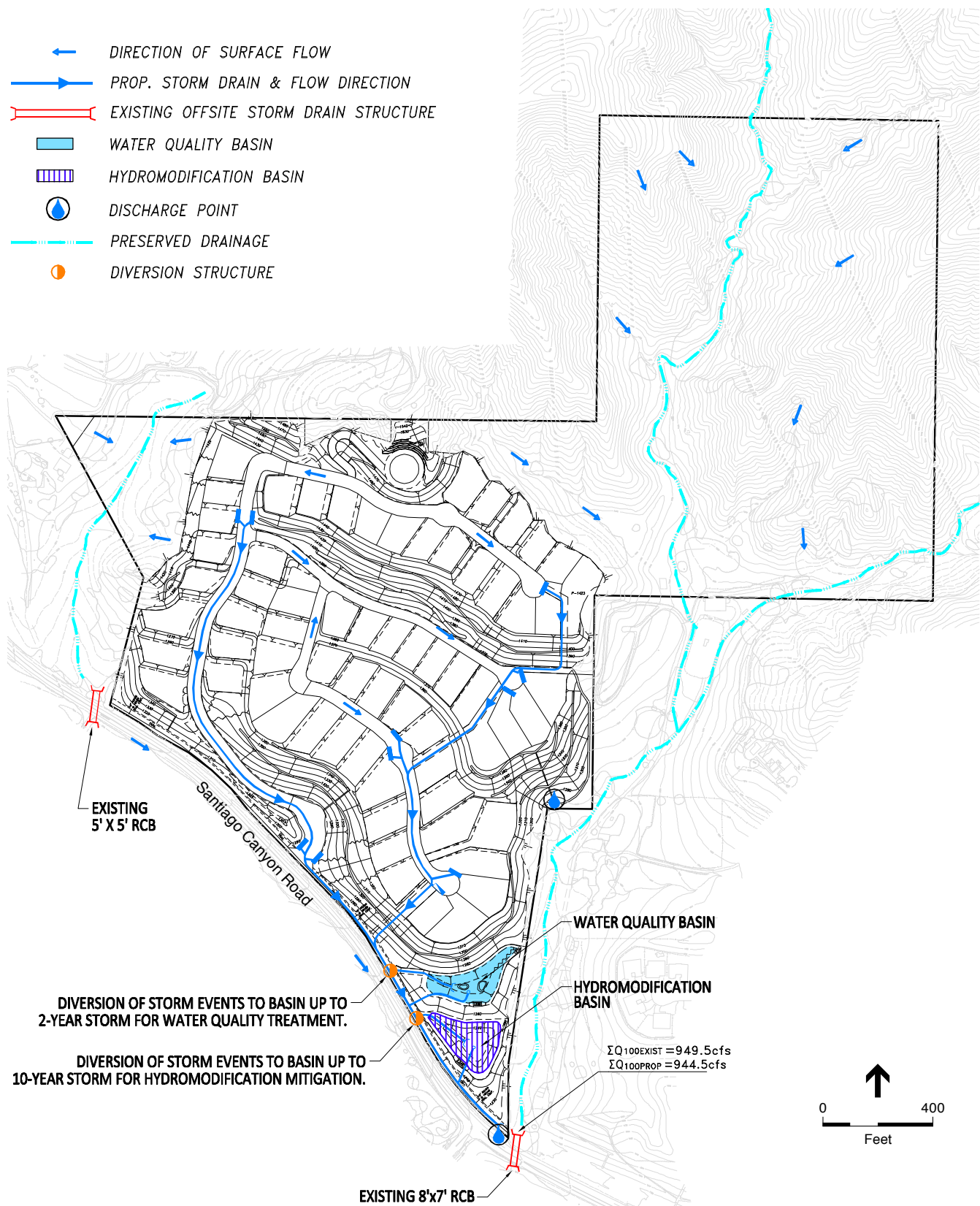
#### Proposed Project

Construction activities would include the use of heavy equipment and construction-related chemicals, such as fuels, oils, grease, solvents and paints that would be stored in limited quantities on-site. In the absence of proper controls, these construction activities could result in accidental spills or disposal of potentially harmful materials used during construction that could wash into and pollute surface waters or groundwater. Materials that could potentially contaminate the construction area from a spill or leak include diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids. However, the proposed project would be required to obtain a General Construction Permit which requires the use of BMPs such as water bars, silt fences, staked straw bales, proper disposal of hazardous materials used in construction, development of and adherence to a construction SWPPP, avoidance of water bodies and riparian areas during construction, and development of and adherence to erosion and sediment control BMPs. Implementation of these measures would protect both surface and groundwater quality in the project area from accidental spills of hazardous materials occurring during construction and therefore; however, impacts to water quality during construction activity would not be considered significant.

Post construction, the addition of impervious surfaces would alter existing drainage patterns, which if not designed appropriately, could result in adverse effects to the water quality of stormwater runoff (see **Figure 3.8-2**).

However, the clustered design of the proposed project would adhere to drainage control requirements in accordance with the Orange County DAMP and MS4 Permit requirements. The clustered design of the proposed project has several hydrologic benefits by preserving the site's main drainage along the easterly boundary in its natural state decreasing the potential to affect downstream drainages with increased flows, velocities and sedimentation caused by filling drainages and conveying runoff through storm drain facilities. Project Design Features PDF-23 through PDF-25 would serve to reduce impacts related to erosion and loss of topsoil by mimicking natural hydrological characteristics of the site and implementing LID techniques and BMPs to minimize soil disturbance. Project Design Features PDF-34 and PDF-35 require a Preliminary Hydrology Analysis and CWQMP to further identify methods to reduce overall site runoff.





SOURCE: Hunsaker & Associates, 2012.

Saddle Crest Homes . 211454

**Figure 3.8-2**  
Proposed Hydrology &  
Water Quality Improvements

The developed portion of the site would route conveyed flows through storm drain facilities to a dry extended detention water quality. A second hydromodification detention basin with storm flow storage capacity and a controlled outlet would help reduce runoff velocities and peak discharge at the discharge point. Project Design Feature PDF-36 would require this basin employ approved vector control treatment measures. The proposed project incorporates design features to mimic the hydrologic characteristics of the site in its natural, undeveloped drainage state (PDF-23), thereby adhering to current hydromodification requirements established by the current MS4 permit.

Similar to the hydrologic benefits, the water quality design of the proposed project, as indicated above, provides an efficient design which treats the site's development flows (runoff) primarily with one dry extended detention water quality basin, while implementing several other LID techniques that have proven effective in protecting water quality that is discharged to receiving waters. In addition, Project Design Feature PDF-37 would require the use of pervious pavers and roof drains connected to pervious areas, in order to minimize stormwater runoff. Consistent with the LID techniques specified in the current MS4 order, the following design features have been utilized in the proposed project and also identified in the CWQMP (as required by Project Design Feature PDF-35):

- Conserve natural areas, including existing trees, other vegetation and soils.
- Construct streets to minimum widths and eliminate paved sidewalks on private streets.
- Minimize the impervious footprint of the project.
- Minimize disturbances to natural drainages.
- The hydromodification detention basin will employ approved vector control treatment measures.
- Education for property owners, tenants, and occupants including storm drain stenciling and signage.
- Activity restrictions.
- Common area landscape management.
- BMPs maintenance.
- Common area litter control.
- Employee training.
- Common area catch basin inspection.
- Street sweeping private streets and parking areas.
- Use of efficient irrigation systems and landscape design.
- Hillside landscaping.
- Pervious pavers.
- Roof drains to pervious areas.
- Native/irrigation-efficient landscape.

Water quality treatment for the disturbed area would be primarily accomplished with for a dry extended detention water quality basin. A second basin is proposed to address any

hydromodification impacts. Both basins have been sized in accordance with the requirements of the Orange County DAMP and the South Orange County Hydromodification Control BMP Sizing Tool to ensure that the basins would be functional and effective in treating and controlling project runoff.

The developed portion of the project site would route conveyed flows through storm drain facilities to the site's water quality basin. The site's water quality basin would be bifurcated into a water quality basin and a second basin for hydromodification impacts. The dry extended detention water quality basin would be located at the southernmost portion of the project site to treat the project's required Storm Water Quality Design Volume (SQDV) prior to discharging runoff off-site to the existing channel along the south side of Santiago Canyon Road (see Appendix I.2 of this Draft EIR). Based on preliminary designs, the SQDV required for the development portion of the project site is 1.75 acre-feet. This basin has been designed for a maximum 72-hour drawdown period for detained runoff. During storm events, a second basin would function as a detention basin to ensure that there would not be a net increase in the pre- and post-project peak flows (2-, 5-, 10-, 25- and 100-year events), as well as mimic the site's natural conditions for a specific range of smaller storm flows (ten percent of the two-year peak flow to the ten-year peak flow) to mitigate potential hydromodification (see below for further discussion on hydrologic conditions of concern). This basin will employ approved vector control treatment measures, as specific in the California Department of Public Health's recommendation for BMPs for mosquito control in collaboration with the OCVCD to mitigate potential vector issues.

The dry extended water quality detention basin is anticipated to treat storm water pollutants through adsorption, filtration, microbial activity, decomposition, sedimentation and volatilization. Infiltration through the basin's slopes and bottom are a key component of the basin's design utilizing the natural filtering ability of soil to remove pollutants in storm water runoff. To ensure that infiltration occurs, the basin would be lined with engineered fill, to allow for adequate percolation of runoff in the basin soil. Following infiltration through the engineered fill, a subsurface drainage system in the basin would collect the treated runoff and convey it to the basin outlet. The dry extended detention water quality basin is anticipated to provide adequate treatment of the majority of the project's primary pollutants of concern, providing at minimum, medium pollutant removal rates.

The main treatment facility would be localized to allow for efficient maintenance. To complement the dry extended detention water quality basin, LID features along with other smaller BMPs, would be utilized such as pervious pavers, roof drains to pervious (landscaped) areas (PDF-37) and native/irrigation efficient landscaping to promote some infiltration and slow down surface flows (PDF-25). The proposed project's water quality design would meet the current development regulations established by the San Diego RWQCB in the current MS4 permit and consistent with General Plan Policy 5 of the Water Resources Component and Policy 13 of the Land Use Element. By incorporating these LID features in accordance with local requirements, the need for water quality treatment for developed flows is minimized and potential impacts associated with implementation of the proposed project would be reduced.

**Impact Determination:** Construction and operation of the proposed project would have the potential to violate water quality standards. Mitigation Measures MM 3.8-1 through MM 3.8-7, as well as Project Design Features PDF-23 through PDF-25, PDF-35 and PDF-37 would reduce impacts to less than significant.

## Non-Clustered Scenario

Similar to that described above for the proposed project, the drainage control features would be required to adhere to General Construction Permit as well as the Orange County DAMP and current MS4 permit requirements. In the non-clustered scenario, residential lots and open space areas would be dispersed throughout the entire approximate 113.7-acre site which would minimize landform alteration (cuts and fills) to create the building pads. With the exception of Project Design Features PDF-1 and PDF-23, the project design features included in the proposed project would also apply to the non-clustered scenario. By not including Project Design Feature PDF-23, the non-clustered scenario would not be designed specifically to mimic the natural hydrologic conditions of the site. The residential lots would be accessed by private roads which would require extensive grading across all three of the site's natural drainage courses, utilizing the entire property to provide the development potential established by the F/TSP. Private access roads would follow existing drainages to make road grades and slope heights feasible and consistent with the F/TSP and County standards due to the site's steep terrain. Consequently, natural drainages would have to be replaced with roadways and storm drain facilities to capture and convey flows through the property. This type of design layout, though consistent with the F/TSP, is inconsistent with the LID techniques and hydromodification mitigation measures mandated by the current MS4 permit.

By replacing natural drainages with paved roads, manufactured slopes and storm drain facilities, runoff velocities and volume would increase as would the potential for downstream sedimentation from the associated grading disturbances. With the potential for increased flows (volume and velocity) and sediment transport, downstream drainages may be impacted with excessive channel erosion, plant form migration, alteration to baseflow or changes in bed material composition as well as biologic impacts to the streams. These are precisely the hydrologic conditions of concern the current MS4 permit is requiring proposed development to account for and mitigate against. The layout of the non-clustered scenario, though consistent with the development guidelines of the F/TSP, would not be consistent with the LID techniques and hydromodification measures mandated by the current MS4 permit.

Similarly, water quality treatment would also be affected by a non-clustered scenario's more spread out design which requires more street area to access all portions of the development site. For example, the impervious paving required for the private street system under the non-clustered scenario is approximately 33 percent more than the proposed project (approximately nine acres of private streets in the non-clustered scenario as opposed to approximately six acres in the proposed project). Consequently, more impervious area over a larger percentage of the project site would require more treatment control BMPs to handle the several different drainage area discharge points to effectively treat the site's runoff in comparison to the proposed project with one discharge location and main treatment control BMP. The multiple treatment BMP locations



would impact all of the drainage area's natural processes as well as result in higher maintenance costs in comparison to the proposed project to ensure the multiple BMP facilities are functioning properly.

Additionally, the non-clustered scenario would require seven water quality basins to mitigate downstream drainage courses and impacts to storm drains. As a result, although impacts would be greater than those of the proposed project, impacts from the non-clustered scenario would not cause a significant environmental impact from new or expanded storm drain facilities.

Therefore, the non-clustered scenario, though consistent with the design guidelines and regulations of the F/TSP, doesn't meet the intent of the resource agencies' current regulations for development proposals relative to water quality function and hydromodification. The main issue with a non-clustered scenario is that it fails to preserve the project's most sensitive and biologically significant features, an essential principle of the LID techniques required by the MS4 permit.

Implementation of the all the permit requirements, as required by Orange County, would reduce the overall potential water quality impacts related to discharges of stormwater.

**Impact Determination:** Construction and operation of the non-clustered scenario would have the potential to violate water quality standards. Mitigation Measures MM 3.8-1 through MM 3.8-7, as well as Project Design Features PDF-24, PDF-25, PDF-35 and PDF-37 would reduce impacts to less than significant. However, impacts would be greater under the non-clustered scenario as compared to the proposed project.

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**Impact 3.8.2:** Deplete or interfere with groundwater resources.

**Significance Standard for Impact 3.8.2:** Would the proposed project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

## Proposed Project

The project site would result in a net increase in impervious surfaces over existing conditions. However, as discussed above the groundwater that was encountered was considered to be isolated and perched within bedrock units and not part of a regional groundwater table. In addition, although water for the proposed project would in part come from local groundwater supplies (through TCWD facilities), the proposed project's impact on water supplies would be less than significant (see Section 3.15, *Utilities and Service Systems*, of this Draft EIR). Therefore, the potential impact on local groundwater supplies from the proposed project would be less than significant.

**Impact Determination:** The proposed project would increase pervious surfaces on the project site, however, since it was determined that groundwater beneath the site is isolated, impacts related to groundwater supply and recharge would be less than significant.

## Non-Clustered Scenario

Similar to that described above for the proposed project, the non-clustered scenario would also result in a net increase in impervious surfaces and groundwater that was encountered was considered not part of a regional groundwater table. Therefore, the potential impact on local groundwater supplies from the proposed project would be less than significant. In addition, although water for the non-clustered scenario would in part come from local groundwater supplies (through TCWD facilities), the proposed project's impact on water supplies would be less than significant (see Section 3.15, *Utilities and Service Systems*, of this Draft EIR).

**Impact Determination:** The non-clustered scenario would increase pervious surfaces on the project site, however, since it was determined that groundwater beneath the site is isolated, impacts related to groundwater supply and recharge would be less than significant.

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**Impact 3.8.3:** Alter drainage patterns resulting in erosion or flooding.

**Significance Standard for Impact 3.8.3:** Would the proposed project substantially alter the existing drainage pattern of a site or area including the alteration of the course of a stream or river in a manner that would result in substantial erosion or siltation on- or off-site; or a substantial increase in the rate or amount of surface run-off in a manner which would result in flooding on- or off-site?

## Proposed Project

Construction of the proposed project would alter the existing drainage pattern through the addition of building sites and access roads. As described above in Impact 3.8.1, the clustered design of the proposed project would be required to adhere to drainage control requirements that would preserve the site's main drainage along the easterly boundary (Project Design Feature PDF-23). In addition to other required LID improvements and drainage design, the stormwater increased flows and velocities would be minimized (PDF-24 and PDF-25). The developed portion of the project site would direct stormwater flows through drainage improvements that include a hydromodification detention basin with sufficient storm flow storage capacity to control flows that minimize any potential for erosion or siltation in on- or off-site flows. The proposed project includes Project Design Feature PDF-23, which incorporates design features and drainage improvements to mimic the hydrologic characteristics of the site in its natural, undeveloped state drainage, thereby adhering to current hydromodification requirements established by the current MS4 permit. This basin would be adequately sized in accordance with Orange County requirements to reduce the potential for big storm surges to cause any potential downstream flooding of receiving waters (PDF-34). Implementation of the drainage design requirements and

LID improvements would reduce the potential for on- or off-site erosion or siltation as well as any flooding on- or off-site as a result of alteration to existing drainage patterns.

**Impact Determination:** The proposed project would alter drainage patterns on-site such that erosion, flooding, and/or storm water runoff impacts would be potentially significant. Mitigation Measures MM 3.8-1 through MM 3.8-7, as well as Project Design Features PDF-23 through PDF-25 and PDF-34 through PDF-37 would reduce impacts to less than significant.

## Non-Clustered Scenario

As described above, the non-clustered scenario would result in a further alteration of existing drainage features compared to the proposed project to accommodate the necessary increase in access roads to the more dispersed residential locations. The non-clustered scenario would replace natural drainages with paved roads, manufactured slopes and storm drain facilities. Runoff velocities and volume could potentially increase as well as the potential for downstream sedimentation from the associated grading disturbance. With the potential for increased flows (volume and velocity) and sediment transport, downstream drainages could become impacted with excessive channel erosion, plant form migration, alteration to baseflow or changes in bed material composition if not managed appropriately. By replacing natural drainages with paved roads, manufactured slopes and storm drain facilities, runoff velocities and volume would increase as would the potential for downstream sedimentation from the associated grading disturbances. With the potential for increased flows (volume and velocity) and sediment transport, downstream drainages may be impacted with excessive channel erosion, alteration to baseflow or changes in bed material composition. These kinds of effects represent the hydrologic conditions of concern the current MS4 permit is requiring proposed development to account for and mitigate against. Similarly, water quality treatment would also be affected by a non-clustered scenario's more spread out design which requires more street area than a clustered approach to access all portions of the development site. However, similar to that of the proposed project, the drainage control requirements of Orange County would still be adhered to and implemented to reduce the potential for adverse effects related to drainage control. Although the non-clustered scenario would require more extensive drainage control improvements compared to the proposed project, they would still be required to adhere to the Orange County and MS4 permit requirements which would reduce the potential for on- or off-site erosion and sedimentation impacts to less than significant levels. In addition, the non-clustered scenario would similarly employ an adequately sized hydromodification detention basin to ensure that stormwater flows from large storm events to do not exacerbate flooding potential of receiving waters in accordance with County requirements. There would be a need to increase the sizing requirements of the detention basin based on the increased impervious surfaces. Therefore, the potential impacts as a result of alterations to existing drainage patterns would be less than significant.

**Impact Determination:** The non-clustered scenario would alter drainage patterns on-site such that erosion and/or storm water runoff impacts would be potentially significant. Mitigation Measures MM 3.8-1 through MM 3.8-7, as well as Project Design Features PDF-24 and PDF-25, and PDF-34 through PDF-37 would reduce impacts to less than significant. However, impacts would be greater under the non-clustered scenario as compared to the proposed project.

**Impact 3.8.4:** Exceed stormwater drainage systems or provide new sources of polluted runoff.

**Significance Standard for Impact 3.8.4:** Would the proposed project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

## Proposed Project

The proposed project would result in a net increase of impervious surfaces which would require drainage improvements to capture flows. As a result these flows would be susceptible to various pollutants that are commonly associated with streets, roofs, driveways, etc. To reduce the potential for the proposed development to result in hydrologic conditions of concern or hydromodification to the downstream drainage course (Aliso Creek) relating to both water quantities and quality, a dry extended detention water quality basin and a hydromodification detention basin would be included as part of the project's drainage improvements to control the release of runoff from the development area and provide treatment of retained stormwater (see also Project Design Feature PDF-24 and discussion under Impact 3.8.1 for discussion of water quality). As specified by the County's Interim Hydromodification Criteria for implementation of the MS4 permit, the basin would function to mimic the site's natural condition for a specific range of storm flows (ten percent of the two-year peak flow to the ten-year peak flow). In order to achieve this function the basin would be sized to receive and manage runoff flows from the drainage area of the site's development envelope (approximately 56.0 acres) per the South Orange County Hydromodification Control BMP Sizing Tool. Approximately, 6.0 acre-feet (261,360 cubic feet) of storage is required to mitigate potential hydromodification impacts to downstream drainages. The basin's preliminary design would provide approximately 6.2 acre-feet of storage which exceeds the required hydromodification storage volume. Project Design Feature PDF-36 would require this basin employ approved vector control measures.

Project Design Features PDF-23 through PDF-25 would serve to reduce impacts related to erosion and loss of topsoil as a result of stormwater runoff by mimicking natural hydrological characteristics of the site and implementing LID techniques and BMPs to minimize soil disturbance. Project Design Features PDF-34 and PDF-35 require a Preliminary Hydrology Analysis and CWQMP to further identify methods to reduce overall site runoff. In addition, Project Design Feature PDF-37 would require the use of pervious pavers and roof drains connected to pervious areas, in order to minimize stormwater runoff. Implementation of the proposed development in accordance with Orange County drainage control requirements and the project design features would reduce impacts related to stormwater system capacity and polluted runoff; however, mitigation would be required.

**Impact Determination:** The proposed project would result in additional runoff that would result in new sources of polluted runoff. Mitigation Measures MM 3.8-1 through MM 3.8-7, as well as Project Design Features PDF-23 through PDF-25, and PDF-34 through PDF-37 would reduce impacts resulting from increased stormwater drainage to less than significant.



## Non-Clustered Scenario

Similar to that described above for the proposed project, the non-clustered scenario would also be required to size the detention basins to meet Orange County drainage control requirements. Although the non-clustered scenario would result in an overall increase in the amount of drainage control features, primarily due to the increase in access road area, the detention basins would be sized accordingly and still provide a means of water quality control. In addition, other treatment features including LID improvements and terrace drains located throughout the proposed development would reduce impacts related to stormwater capacity and water quality control; however, impacts would be significant and mitigation would be required.

**Impact Determination:** The non-clustered scenario would result in additional runoff that would provide substantial additional sources of polluted runoff. Mitigation Measures MM 3.8-1 through 3.8-7, as well as Project Design Features PDF-23 through PDF-25 would reduce impacts to less than significant.

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**Impact 3.8.5:** Otherwise degrade water quality.

**Significance Standard for Impact 3.8.5:** Would the proposed project otherwise substantially degrade water quality?

## Proposed Project

As described above (Impact 3.8.1), the proposed project would introduce new impervious surfaces which could potentially create new sources of pollution in stormwater runoff compared to existing conditions as well as reduce the total amount of area available for groundwater recharge. However, the implementation of LID drainage features including a dry extended detention water quality basin would minimize the amount of reduction in total recharge area (PDF-23). The use of dry extended detention water quality features on the site would also provide treatment of any conveyed or stored stormwater runoff which would then not adversely affect underlying groundwater quality (PDF-24). The proposed project would not otherwise be a source of pollution that could potentially impair receiving waters. Therefore, with implementation of the LID drainage features, in accordance with local Orange County requirements the potential impacts to water quality would be less than significant.

**Impact Determination:** The proposed project would incorporate Mitigation Measures MM 3.8-1 through MM 3.8-7, as well as Project Design Features PDF-23 through PDF-25 and PDF-33 through PDF-37, which would reduce impacts to water quality. There would be no other water quality effects and impacts would be less than significant.

## Non-Clustered Scenario

Similar to that described above for the proposed project, the addition of the water quality detention basins and other drainage control measures that are designed to control off-site runoff volumes as required by Orange County would minimize any water quality impairments at the

project site under the non-clustered scenario. Therefore, the potential impacts to water quality would be less than significant.

**Impact Determination:** The non-clustered scenario would incorporate Mitigation Measures MM 3.8-1 through MM 3.8-7, as well as Project Design Features PDF-24, PDF-25, and PDF-34 through PDF-37 to reduce impacts to water quality. There would be no other water quality effects and impacts would be less than significant.

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### 3.8.6 Cumulative Impacts

The project site is located within the upper reaches of the Aliso Creek Watershed, therefore this is considered the geographic area in which cumulative effects to hydrology and water quality could occur. The Aliso Creek Watershed covers 34.87 square miles and includes portions of the cities of Aliso Viejo, Dana Point, Laguna Niguel, Laguna Woods, Laguna Beach, and Lake Forest. As stated above, the proposed project or the non-clustered scenario would result in less than significant impacts related to hydrology and water quality, including potential increases in flooding and sedimentation, alteration of the existing drainage patterns, and potential water quality impacts due alterations of drainage patterns. The proposed project would include drainage improvements such as LID features that minimize stormwater flows and provide protection from adverse water quality impacts, and the non-clustered scenario would result in less than significant impacts with implementation of permit requirements. With implementation of the other required elements during both construction and operational phases of the proposed project or the non-clustered scenario, all drainage control improvements would be protective of hydrologic resources of downstream receiving waters. Other past, current, and reasonably foreseeable future projects in the watershed would be required to comply with similar drainage (DAMP and MS4 permitting) and grading ordinances intended to control runoff and regulate water quality at each development site. New projects would be required to demonstrate adequate capacities of stormwater volumes that would be managed by downstream conveyance facilities. The Orange County ordinances regarding water quality and NPDES permitting requirements apply throughout the region. Therefore, the effect of the proposed project or the non-clustered scenario on water quality and hydrology, in combination with other past, present, and reasonably foreseeable future projects would be less than significant.

**Impact Determination:** The proposed project or non-clustered scenario would have a less than significant cumulative impact to water quality within the Aliso Creek Watershed.

### 3.8.7 Mitigation Measures

**MM 3.8-1** Prior to the recordation of a subdivision map (except maps for financing and conveyance purposes only) or prior to the issuance of any grading permits, whichever comes first, the following drainage studies shall be submitted to and approved by the Manager, Permit Services:

- 1) A drainage study of the project including diversions, off-site areas that drain onto and/or through the project, and justification of any diversions; and
- 2) When applicable, a drainage study evidencing that proposed drainage patterns will not overload existing storm drains; and
- 3) Detailed drainage studies indicating how the project grading, in conjunction with the drainage conveyance systems including applicable swales, channels, street flows, catch basins, storm drains, and flood water retarding, will allow building pads to be safe from inundation from rainfall runoff which may be expected from all storms up to and including the theoretical 100-year flood.

**MM 3.8-2** Prior to the issuance of any grading permits, the applicant shall in a manner meeting the approval of the Manager, Permit Services:

- 1) Design provisions for surface drainage; and
- 2) Design all necessary storm drain facilities extending to a satisfactory point of disposal for the proper control and disposal of storm runoff; and
- 3) Dedicate the associated easements to the County of Orange, if determined necessary.

**MM 3.8-3** Prior to the recordation of a subdivision map (except for financing and conveyance purposes only), whichever comes first, the applicant shall participate in the applicable Master Plan of Drainage in a manner meeting the approval of the Manager, Permit Services, including payment of fees and the construction, or provide evidence of financial security (such as bonding), of the necessary facilities.

**MM 3.8-4** Prior to the issuance of any grading or building permits, the applicant shall submit for review and approval by the Manager, Permit Services, a final Water Quality Management Plan (WQMP) specifically identifying best management practices (BMPs) that will be used on-site to control predictable pollutant runoff. The applicant shall utilize the Orange County Drainage Area Management Plan (DAMP), Model WQMP, and Technical Guidance Manual for reference, and the County's WQMP template for submittal. This final WQMP shall update the project's Conceptual Water Quality Management Plan based on the final design and include the following:

- Detailed site and project description;
- Potential stormwater pollutants;
- Post-development drainage characteristics;
- Low impact development (LID) BMP selection and analysis;
- Structural and non-structural source control BMPs;
- Site design and drainage plan (BMP Exhibit);
- GIS coordinates for all LID and treatment control BMPs;
- Operation and Maintenance Plan that: (1) describes the long-term operation and maintenance requirements for BMPs identified in the BMP Exhibit; (2) identifies the entity that will be responsible for long-term operation and

maintenance of the referenced BMPs; and (3) describes the mechanism for funding the long-term operation and maintenance of the referenced BMPs; and

- The BMP Exhibit from the approved WQMP shall be included as a sheet in all plan sets submitted for plan check and all BMPs shall be depicted on these plans. Grading and building plans must be consistent with the approved BMP exhibit.

**MM 3.8-5** Prior to the issuance of a certificate of use and occupancy, the applicant shall demonstrate compliance with the County's NPDES Implementation Program in a manner meeting the satisfaction of the Manager, OC Inspection, including:

- Demonstrate that all structural best management practices (BMPs) described in the BMP exhibit from the project's approved WQMP have been implemented, constructed and installed in conformance with approved plans and specifications;
- Demonstrate that the applicant has complied with all non-structural BMPs described in the project's WQMP;
- Submit for review and approval, an Operations and Maintenance Plan for all structural BMPs (the plan shall become an attachment to the WQMP);
- Demonstrate that copies of the project's approved WQMP (with attached Operations and Maintenance Plan) are available for each of the initial occupants;
- Agree to pay for a Special Investigation from the County for a date 12 months after the issuance of a Certificate of Use and Occupancy for the project to verify compliance with the approved WQMP and Operations and Maintenance Plan;
- Demonstrate that the applicant has RECORDED one of the following:
  - The CC&R's (that must include the approved Water Quality Management Plan and Operations and Maintenance Plan) for the project's Homeowner's Association;
  - A water quality implementation agreement that has the approved Water Quality Management Plan and Operations and Maintenance Plan attached; or
  - The final approved Water Quality Management Plan and Operations and Maintenance Plan.

**MM 3.8-6** Prior to the issuance of any grading or building permits, the applicant shall demonstrate compliance under California's General Permit for Stormwater Discharges Associated with Construction Activity by providing a copy of the Notice of Intent (NOI) submitted to the State Water Resources Control Board and a copy of the subsequent notification of the issuance of a Waste Discharge Identification (WDID) Number; or other proof of filing in a manner meeting the satisfaction of the Manager, Permit Services. Projects subject to this requirement

shall prepare and implement a Stormwater Pollution Prevention Plan (SWPPP). A copy of the current SWPPP shall be kept at the project site and be available for County review on request.

**MM 3.8-7** Prior to the issuance of any grading or building permit, the applicant shall submit a Erosion and Sediment Control Plan (ESCP) in a manner meeting approval of the Manager, Permit Services, to demonstrate compliance with the County's NPDES Implementation Program and state water quality regulations for grading and construction activities. The ESCP shall identify how all construction materials, wastes, grading or demolition debris, and stockpiles of soil, aggregates, soil amendments, etc. shall be properly covered, stored, and secured to prevent transport into local drainages or coastal waters by wind, rain, tracking, tidal erosion or dispersion. The ESCP shall also describe how the applicant will ensure that all BPMs will be maintained during construction of any future public right-of-ways. A copy of the current ESCP shall be kept at the project site and be available for County review on request.

### 3.8.8 Impact Determination

The proposed project and the non-clustered scenario would have similar impact determinations regarding hydrology and water quality. Regarding Impact 3.8.1, construction and operation of the proposed project or non-clustered scenario would have the potential to violate water quality standards. Mitigation Measures MM 3.8-1 through MM 3.8-7, as well as Project Design Features PDF-23 through PDF-25 would reduce impacts to less than significant. The non-clustered scenario would not include Project Design Feature PDF-23, which requires a project design that mimics the natural hydrological characteristics of the site through clustering of development. Thus, impacts related to erosion and loss of topsoil could be greater than expected for the proposed project.

The proposed project or non-clustered scenario would increase pervious surfaces on the project site, thereby changing groundwater recharge conditions; however, impacts related to groundwater supply and recharge would be less than significant (Impact 3.8.2).

Regarding Impact 3.8.3, the proposed project or non-clustered scenario would alter drainage patterns on-site such that erosion and/or storm water runoff impacts would be potentially significant. Mitigation Measures MM 3.8-1 through MM 3.8-7, as well as Project Design Features PDF-23 through PDF-25 would reduce impacts to less than significant. The non-clustered scenario would not include Project Design Feature PDF-23, which requires a project design that mimics the natural hydrological characteristics of the site through clustering of development. Thus, impacts related to erosion and loss of topsoil could be greater for the non-clustered scenario than expected for the proposed project.

The proposed project or non-clustered scenario would result in additional runoff that would provide substantial additional sources of polluted runoff (Impact 3.8.4). Mitigation Measures MM 3.8-1 through MM 3.8-7, as well as Project Design Features PDF-23 through PDF-25 would

reduce impacts to less than significant. The non-clustered scenario would not include Project Design Feature PDF-23, which requires a project design that mimics the natural hydrological characteristics of the site through clustering of development. Thus, impacts related to erosion and loss of topsoil could be greater than expected for the proposed project.

The proposed project or non-clustered scenario would incorporate mitigation and project design features to reduce impacts to water quality, and there would be no other water quality effects (Impact 3.8.5). Impacts would be less than significant.

The proposed project and non-clustered scenario would have a less than significant cumulative impact to water quality within the Aliso Creek Watershed.